## CLAIMS

1. A loop thermosyphon mounted at a casing (300) of equipment having a heat source, and employing a working fluid enclosed in a closed circuit to transfer heat from said heat source, said closed circuit including:

an evaporator (110) depriving said heat source of heat to evaporate said working fluid;

a condenser (130A) condensing said working fluid evaporated at said evaporator (110);

a feed pipe (120) feeding to said condenser (130A) said working fluid evaporated at said evaporator (110); and

a return pipe (140) returning to said evaporator (110) said working fluid condensed at said condenser (130A), wherein

said condenser (130A) has a serpentine tube having a linear portion (134a-134d) extending in one direction and forming a plurality of stages in layers, and a curved portion (135a-135c) connecting such linear portions (134a-134d) together, and

said serpentine tube has a bottommost one (134d) of said linear portions (134a-134d) inclined in a direction allowing said bottommost linear portion (134d) to be closer to a bottom surface (301) of said casing (300) as said bottommost linear portion (134d) approaches said return pipe (140).

2. A Stirling refrigerator having a Stirling refrigerating machine (200) mounted, wherein:

said Stirling refrigerating machine (200) includes the loop thermosyphon of claim 1; and

said evaporator (110) is configured to exchange heat with a heated portion (204) of said Stirling refrigerating machine (200).

3. A loop thermosyphon mounted at a casing (300) of equipment having a heat source, and employing a working fluid enclosed in a closed circuit to transfer heat from said heat source, said closed circuit including:

an evaporator (110) depriving said heat source of heat to evaporate said working fluid;

a condenser (130A) condensing said working fluid evaporated at said evaporator (110);

a feed pipe (120) feeding to said condenser (130A) said working fluid evaporated at said evaporator (110); and

a return pipe (140) returning to said evaporator (110) said working fluid condensed at said condenser (130A), wherein

said condenser (130A) is an assembly including a header pipe (131) associated with said feed pipe (120), and connected to said feed pipe (120) to branch said working fluid introduced thereinto, a header pipe (132) associated with said return pipe (140), and connected to said return pipe (140) and joining together said working fluid branched, and a plurality of aligned pipes (133) extending in a same direction and connecting said header pipes (131 and 132) together,

said aligned pipes (133) are each a serpentine tube having a linear portion (134a-134d) extending in one direction and forming a plurality of stages in layers, and a curved portion (135a-135c) connecting such linear portions (134a-134d) together, and

said condenser (130A) is entirely inclined relative to a bottom surface (301) of said casing (300) such that of said linear portions (134a-134d), a bottommost linear portion (134d) is inclined in a direction allowing said bottommost linear portion (134d) to be closer to said bottom surface (301) as said bottommost linear portion (134d) approaches said header pipe (132) associated with said return pipe.

4. The loop thermosyphon according to claim 3, wherein said condenser (130A) is arranged to incline relative to said bottom surface (301) of said casing (300)

at an angle larger than 0° and at most 6°.

5. The loop thermosyphon according to claim 3, wherein:

said header pipe (132) associated with said return pipe extends in a second direction traversing said first direction;

said return pipe (140) is connected in a vicinity of one end of said header pipe (132) associated with said return pipe and extending in said second direction; and

said header pipe (132) associated with said return pipe is inclined in a direction allowing said header pipe (132) associated with said return pipe to be closer to said bottom surface (301) of said casing (300) as said header pipe (132) associated with said return pipe extends toward said one end from the other end positionally opposite said one end.

6. A Stirling refrigerator having a Stirling refrigerating machine (200) mounted, wherein:

said Stirling refrigerating machine (200) includes the loop thermosyphon of claim 3; and

said evaporator (110) is configured to exchange heat with a heated portion (204) of said Stirling refrigerating machine (200).

7. A loop thermosyphon mounted at a casing (300) of equipment having a heat source, and employing a working fluid enclosed in a closed circuit to transfer heat from said heat source, said closed circuit including:

an evaporator (110) depriving said heat source of heat to evaporate said working fluid;

a condenser (130B) condensing said working fluid evaporated at said evaporator (110);

a feed pipe (120) feeding to said condenser (130B) said working fluid

evaporated at said evaporator (110); and

a return pipe (140) returning to said evaporator (110) said working fluid condensed at said condenser (130B), wherein

said condenser (130B) is an assembly including a header pipe (131) associated with said feed pipe (120), and connected to said feed pipe (120) to branch said working fluid introduced thereinto, a header pipe (132) associated with said return pipe (140), and connected to said return pipe (140) and joining together said working fluid branched, and a plurality of aligned pipes (133) extending in a same direction and connecting said header pipes (131 and 132) together,

said header pipe (132) associated with said return pipe extends in one direction,

said return pipe (140) is connected in a vicinity of one end of said header pipe (132) associated with said return pipe and extending in said one direction, and

said header pipe (132) associated with said return pipe is inclined in a direction allowing said header pipe (132) associated with said return pipe to be closer to a bottom surface (301) of said casing (300) as said header pipe (132) associated with said return pipe extends toward said one end from the other end positionally opposite said one end.

8. A Stirling refrigerator having a Stirling refrigerating machine (200) mounted, wherein:

said Stirling refrigerating machine (200) includes the loop thermosyphon of claim 7; and

said evaporator (110) is configured to exchange heat with a heated portion (204) of said Stirling refrigerating machine (200).

9. A loop thermosyphon mounted at a casing (300) of equipment having a heat source, and employing a working fluid enclosed in a closed circuit to transfer heat from said heat source, said closed circuit including:

an evaporator (110) depriving said heat source of heat to evaporate said working

fluid;

a condenser (130G) condensing said working fluid evaporated at said evaporator (110);

a feed pipe (120) feeding to said condenser (130G) said working fluid evaporated at said evaporator (110); and

a return pipe (140) returning to said evaporator (110) said working fluid condensed at said condenser (130G), wherein

said condenser (130G) is an assembly including a header pipe (131) associated with said feed pipe (120), and connected to said feed pipe (120) to branch said working fluid introduced thereinto, a header pipe (132) associated with said return pipe (140), and connected to said return pipe (140) and joining together said working fluid branched, and a plurality of linear tubes (133) arranged in parallel and connecting said header pipes (131 and 132) together, and

said linear tubes (133) are each inclined in a direction allowing each said linear tube (133) to be closer to a bottom surface (301) of said casing (300) as each said linear tube (133) approaches said header pipe (132) associated with said return pipe.

10. A Stirling refrigerator having a Stirling refrigerating machine (200) mounted, wherein:

said Stirling refrigerating machine (200) includes the loop thermosyphon of claim 9; and

said evaporator (110) is configured to exchange heat with a heated portion (204) of said Stirling refrigerating machine (200).

11. A cooling apparatus having a heat transfer cycle (5) associated with a cold portion (3) and extracting cold generated by a Stirling refrigerating machine (1) at said cold portion (3), and a heat transfer cycle (4) associated with a heated portion (2) and externally radiating hot generated by said Stirling refrigerating machine (1) at said

heated portion (2), wherein:

said heat transfer cycle (4) associated with said heated portion (2) includes an evaporator (6) associated with said heated portion and attached to said Stirling refrigerating machine (1) at said heated portion (2) and a condenser (8) associated with said heated portion and arranged to be higher in level than said evaporator (6), with a vapor coolant pipe (7) and a condensate coolant pipe (11) connecting said evaporator (6) and said condenser (8) to form a coolant circulation circuit, and

said condensate coolant pipe (11) includes a lateral pipe (11C) having opposite ends closed and connected to said condenser (8) and a pair of vertical pipes (11A, 11B) vertically connecting said evaporator (6) and said lateral pipe (11C) together, said pair of vertical pipes (11A, 11B) having one and the other, upper ends connected to said lateral pipe (11A, 11B) at one and the other ends, respectively.

12. The cooling apparatus according to claim 11, wherein said vertical pipe (11A, 11B) has an inclined portion (11Aa, 11Ba) having a downward gradient.

13. The cooling apparatus according to claim 12, wherein said downward gradient is at least 5° with reference to said cooling apparatus placed in a horizontal position.

14. A cooling apparatus having a heat transfer cycle (5) associated with a cold portion (3) and extracting cold generated by a Stirling refrigerating machine (1) at said cold portion (3), and a heat transfer cycle (4) associated with a heated portion (2) and externally radiating hot generated by said Stirling refrigerating machine (1) at said heated portion (2), wherein:

said heat transfer cycle (4) associated with said heated portion (2) includes an evaporator (6) associated with said heated portion and attached to said Stirling refrigerating machine (1) at said heated portion (2) and a condenser (8) associated with

said heated portion and arranged to be higher in level than said evaporator (6), with a vapor coolant pipe (7) and a condensate coolant pipe (11) connecting said evaporator (6) and said condenser (8) to form a coolant circulation circuit,

said condensate coolant pipe (11) includes a lateral pipe (11C) having opposite ends closed and connected to said condenser (8) and a pair of vertical pipes (11A, 11B) vertically connecting said evaporator (6) and said lateral pipe (11C) together, and said vapor coolant pipe (7) includes a lateral pipe (7C) having opposite ends closed and connected to said condenser (8) and a pair of vertical pipes (7A, 7B) vertically connecting said evaporator (6) and said lateral pipe (7C) together, and

said lateral pipe (7C) of said vapor coolant pipe (7) is arranged to be higher in level than said lateral pipe (11C) of said condenser coolant pipe (11) and a degassing charge pipe (21) is attached to said vapor coolant pipe (7) at said lateral pipe (7C).